SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: KOZLOV, VLADIMIR
TSYRLOVA, IRENA

(ii) TITLE OF INVENTION: INHIBITOR OF STEM CELL PROLIFERATION AND USES THEREOF

(iii) NUMBER OF SEQUENCES: 11

(iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: NIXON & VANDERHYE P.C.
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(D) STATE: VIRGINIA
(E) COUNTRY: U.S.A.
(F) ZIP: 22201-4714

(v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30

(vi) CURRENT APPLICATION DATA:
(A) APPLICATION NUMBER: US 08/477,668
(B) FILING DATE: 07-JUN-1995
(C) CLASSIFICATION:

(viii) ATTORNEY/AGENT INFORMATION:
(A) NAME: BYRNE, THOMAS E.
(B) REGISTRATION NUMBER: 32,205
(C) REFERENCE/DOCKET NUMBER: 1331-153

(ix) TELECOMMUNICATION INFORMATION:
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(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 422 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GTGCTGTCTC CTGCCGACAA GACCAACGTC AAGGCCGCCT GGGGTAAGGT CGGCGCGCAC 60

GCTGGCGAGT ATGGTGCGGA GGCCCTGGAG AGGATGTTCC TGTCCTTCCC CACCACCAAG 120

ACCTACTTCC CGCACTTCGA CCTGAGCCAC GGCTCTGCCC AGGTTAAGGG CCACGGCAAG 180

AAGGTGGCCG ACGCGCTGAC CAACGCCGTG GCGCACGTGG ACGACATGCC CAACGCGCTG 240

TCCGCCCTGA GCGACCTGCA CGCGCACAAG CTTCGGGTGG ACCCGGTCAA CTTCAAGCTC 300

CTAAGCCACT GCCTGCTGGT GACCCTGGCC GCCCACCTCC CCGCCGAGTT CACCCCTGCG 360

GTGCACGCCT CCCTGGACAA GTTCCTGGCT TCTGTGAGCA CCGTGCTGAC CTCCAAATAC 420

CGT 423

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 141 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

```
Val Leu Ser Pro Ala Asp Lys Thr Asn Val Lys Ala Ala Trp Gly Lys
1               5                  10                  15

Val Gly Ala His Ala Gly Glu Tyr Gly Ala Glu Ala Leu Glu Arg Met
            20                  25                  30

Phe Leu Ser Phe Pro Thr Thr Lys Thr Tyr Phe Pro His Phe Asp Leu
        35                  40                  45

Ser His Gly Ser Ala Gln Val Lys Gly His Gly Lys Lys Val Ala Asp
    50                  55                  60

Ala Leu Thr Asn Ala Val Ala His Val Asp Asp Met Pro Asn Ala Leu
65                  70                  75                  80

Ser Ala Leu Ser Asp Leu His Ala His Lys Leu Arg Val Asp Pro Val
                85                  90                  95

Asn Phe Lys Leu Leu Ser His Cys Leu Leu Val Thr Leu Ala Ala His
            100                 105                 110

Leu Pro Ala Glu Phe Thr Pro Ala Val His Ala Ser Leu Asp Lys Phe
```

```
          115                 120                 125

    Leu Ala Ser Val Ser Thr Val Leu Thr Ser Lys Tyr Arg
        130                 135                 140
```

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 438 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

```
GTGCACCTGA CTCCTGAGGA GAAGTCTGCC GTTACTGCCC TGTGGGGCAA GGTGAACGTG      60

GATGAAGTTG GTGGTGAGGC CCTGGGCAGG CTGCTGGTGG TCTACCTTTG GACCCAGAGG     120

TTCTTTGAGT CCTTTGGGGA TCTGTCCACT CCTGATGCTG TTATGGGCAA CCCTAAGGTG     180

AAGGCTCATG GCAAGAAAGT GCTCGGTGCC TTTAGTGATG GCCTGGCTCA CCTGGACAAC     240

CTCAAGGGCA CCTTTGCCAC ACTGAGTGAG CTGCACTGTG ACAAGCTGCA CGTGGATCCT     300

GAGAACTTCA GGCTGCTGGG CAACGTGCTG GTCTGTGTGC TGGCCCATCA CTTTGGCAAA     360

GAATTCACCC CACCAGTGCA GGCTGCCTAT CAGAAAGTGG TGGCTGGTGT GGCTAATGCC     420

CTGGCCCACA AGTATCAC                                                   438
```

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 146 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

```
Val His Leu Thr Pro Glu Glu Lys Ser Ala Val Thr Ala Leu Trp Gly
1               5                  10                  15

Lys Val Asn Val Asp Glu Val Gly Gly Glu Ala Leu Gly Arg Leu Leu
```

```
                20                  25                  30

Val Val Tyr Pro Trp Thr Gln Arg Phe Phe Glu Ser Phe Gly Asp Leu
        35                  40                  45

Ser Thr Pro Asp Ala Val Met Gly Asn Pro Lys Val Lys Ala His Gly
    50                  55                  60

Lys Lys Val Leu Gly Ala Phe Ser Asp Gly Leu Ala His Leu Asp Asn
65                  70                  75                  80

Leu Lys Gly Thr Phe Ala Thr Leu Ser Glu Leu His Cys Asp Lys Leu
                85                  90                  95

His Val Asp Pro Glu Asn Phe Arg Leu Leu Gly Asn Val Leu Val Cys
            100                 105                 110

Val Leu Ala His His Phe Gly Lys Glu Phe Thr Pro Pro Val Gln Ala
        115                 120                 125

Ala Tyr Gln Lys Val Val Ala Gly Val Ala Asn Ala Leu Ala His Lys
    130                 135                 140

Tyr His
145
```

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 141 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

```
Val Leu Ser Gly Glu Asp Lys Ser Asn Ile Lys Ala Ala Trp Gly Lys
1               5                   10                  15

Ile Gly Gly His Gly Ala Glu Tyr Gly Ala Glu Ala Leu Glu Arg Met
            20                  25                  30

Phe Ala Ser Phe Pro Thr Thr Lys Thr Tyr Phe Pro His Phe Asp Val
        35                  40                  45

Ser His Gly Ser Ala Gln Val Lys Gly His Gly Lys Lys Val Ala Asp
    50                  55                  60

Ala Leu Ala Ser Ala Ala Gly His Leu Asp Asp Leu Pro Gly Ala Leu
65                  70                  75                  80
```

```
Ser Ala Leu Ser Asp Leu His Ala His Lys Leu Arg Val Asp Pro Val
                    85                  90                  95

Asn Phe Lys Leu Leu Ser His Cys Leu Leu Val Thr Leu Ala Ser His
            100                 105                 110

His Pro Ala Asp Phe Thr Pro Ala Val His Ala Ser Leu Asp Lys Phe
        115                 120                 125

Leu Ala Ser Val Ser Thr Val Leu Thr Ser Lys Tyr Arg
    130                 135                 140
```

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 146 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

```
Val His Leu Thr Asp Ala Glu Lys Ala Ala Val Ser Cys Leu Trp Gly
1               5                   10                  15

Lys Val Asn Ser Asp Glu Val Gly Gly Glu Ala Leu Gly Arg Leu Leu
            20                  25                  30

Val Val Tyr Pro Trp Thr Gln Arg Tyr Phe Asp Ser Phe Gly Asp Leu
        35                  40                  45

Ser Ser Ala Ser Ala Ile Met Gly Asn Ala Lys Val Lys Ala His Gly
    50                  55                  60

Lys Lys Val Ile Thr Ala Phe Asn Asp Gly Leu Asn His Leu Asp Ser
65                  70                  75                  80

Leu Lys Gly Thr Phe Ala Ser Leu Ser Glu Leu His Cys Asp Lys Leu
                85                  90                  95

His Val Asp Pro Glu Asn Phe Arg Leu Leu Gly Asn Met Ile Val Ile
            100                 105                 110

Val Leu Gly His His Leu Gly Lys Asp Phe Thr Pro Ala Ala Gln Ala
        115                 120                 125

Ala Phe Gln Lys Val Val Ala Gly Val Ala Thr Ala Leu Ala His Lys
    130                 135                 140

Tyr His
```

145

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 141 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

```
Val Leu Ser Ala Ala Asp Lys Ala Asn Val Lys Ala Ala Trp Gly Lys
1               5                  10                  15

Val Gly Gly Gln Ala Gly Ala His Gly Ala Glu Ala Leu Glu Arg Met
            20                  25                  30

Phe Leu Gly Phe Pro Thr Thr Lys Thr Tyr Phe Pro His Phe Asn Leu
        35                  40                  45

Ser His Gly Ser Asp Gln Val Lys Ala His Gly Gln Lys Val Ala Asp
    50                  55                  60

Ala Leu Thr Lys Ala Val Gly His Leu Asp Asp Leu Pro Gly Ala Leu
65                  70                  75                  80

Ser Ala Leu Ser Asp Leu His Ala His Lys Leu Arg Val Asp Pro Val
                85                  90                  95

Asn Phe Lys Leu Leu Ser His Cys Leu Leu Val Thr Leu Ala Ala His
            100                 105                 110

His Pro Asp Asp Phe Asn Pro Ser Val His Ala Ser Leu Asp Lys Phe
        115                 120                 125

Leu Ala Asn Val Ser Thr Val Leu Thr Ser Lys Tyr Arg
    130                 135                 140
```

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 146 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

```
Val His Leu Ser Ala Glu Glu Lys Glu Ala Val Leu Gly Leu Trp Gly
1               5                  10                  15

Lys Val Asn Val Asp Glu Val Gly Gly Glu Ala Leu Gly Arg Leu Leu
            20                  25                  30

Val Val Tyr Pro Trp Thr Gln Arg Phe Phe Glu Ser Phe Gly Asp Leu
        35                  40                  45

Ser Asn Ala Asp Ala Val Met Gly Asn Pro Lys Val Lys Ala His Gly
    50                  55                  60

Lys Lys Val Leu Gln Ser Phe Ser Asp Gly Leu Lys His Leu Asp Asn
65                  70                  75                  80

Leu Lys Gly Thr Phe Ala Lys Leu Ser Glu Leu His Cys Asp Gln Leu
                85                  90                  95

His Val Asp Pro Glu Asn Phe Arg Leu Leu Gly Asn Val Ile Val Val
            100                 105                 110

Val Leu Ala Arg Arg Leu Gly His Asp Phe Asn Pro Asp Val Gln Ala
        115                 120                 125

Ala Phe Gln Lys Val Val Ala Gly Val Ala Asn Ala Leu Ala His Lys
    130                 135                 140

Tyr His
145
```

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

```
Val His Leu Ser Ala Glu Glu Lys Glu Ala Val Leu Gly Leu Trp Gly
1               5                  10                  15

Lys Val Asn Val Asp Glu Val
            20
```

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

```
Val Leu Ser Ala Ala Asp Lys Ala Asn Val Lys Ala Ala Trp Gly Lys
1               5                   10                  15

Val Gly Gly Gln
            20
```

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

```
Phe Pro His Phe Asn Leu Ser His Gly Ser Asp Gln Val Lys
1               5                   10
```